



BRITISHROWING

HRSA Monthly Report

February 2022

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TEAMWORK | OPEN TO ALL | COMMITMENT

Incident Reports in February

Dead body at the edge of the water

Coaches in launches accompanying rowers noticed what appeared to be a body lying parallel to the water's edge on the river bank, the tide was ebbing and approaching low water. One launch went ashore to investigate, while the other stayed out on the water and called the emergency services. It was the clothed body of a late middle aged man, and it was too late to resuscitate. He appeared to have suffered a head wound. The launches waited until the emergency services arrived and then returned to the clubhouse and explained the situation to their rowers. The action of the coaches was exemplary.

Take care when handling the boat on land

Social rowers were launching an 8+ and the bow rower lost her grip and the boat fell on her. She suffered a glancing blow to the back of her head and jarred her back and shoulder. She also then fell in. She was not able to row 3 days later. In another incident at the same club, social rowers were being helpful, and too many people were carrying a double. A coach asked them to slow down and they did not, causing her to fall. Her knee hit the concrete with some force. Please ensure that all rowers take greater care when launching and recovering their boats.

Take care in crosswinds

There have been several incidents where boats have been blown off course in strong crosswinds. In one an 8x containing young inexperienced rowers attempted to spin upwind of Dove Pier on the Tideway. This is a particularly hazardous location and was the site of the [Dove Pier Incident](#) in 2006 and several other incidents.

The crew rowed upriver with the flood tide and stopped a safe distance from Hammersmith Bridge and in the middle of the river. They attempted to spin the boat, but the children were not strong enough to turn the boat fully against the tide. The 8x was pushed onto the houseboats moored to Dove Pier due to the strong tide and crosswind. After numerous attempts trying to manoeuvre the 8x back into the fairway, it was clear that the tide was too strong for them to be able to move away from the houseboats so they hailed a passing launch and asked for help.

The priority was to ensure that the children were safe and did not end up in the water, so they were transferred into the launches and taken to safety. A coach stayed with the children and they walked back to their boathouse.

Assistance to recover the boat was arranged using a further launch. In the meantime, a member of the public called the RNLI. The boat was recovered to the boathouse by the two launches from the club.

The only damage to the boat was loss of a bow ball. The children were all safe, unharmed, dry and not in shock.

Please learn from the experience of this crew and take great care to ensure that spinning the boat takes place well away from any potential obstacles or known collision points. Assess the wind strength and direction and act accordingly.

Take care in the swimming pool too

During a capsized drill in a swimming pool, a rower unexpectedly initiated a capsize with some force while a coach was holding the boat by the rigger (no blades). The rigger and gate hit the coach in the face. The coach was examined by a doctor (a parent) who was present. She will be badly bruised but there was no serious damage.

The physics of propulsion

There was a comment in an Incident Report that more power is needed to move a launch when it is moving upstream, this was used to explain why it was producing more wash.

It was explained in a comment that rowing boats and launches move through the water and their speed is relative to the water, whichever way the water is moving relative to the land. It does not require more power to maintain speed with respect to the water when moving upstream.

Fasten the Gate

There have been several capsizes due to rowers not fastening their gates properly. Please encourage rowers to ensure that gates are securely fastened.

Look out for badly moored boats

There were at least two occasions, at the same club, when moored boats came free of one mooring and blocked, or partially blocked the waterway.



Take care when appointing a coach

A new assistant coach on their first day at the club was involved in several unfortunate incidents that put the safety of the rowers at risk. These include the coach and another rower pressurising a novice rower, who was unwell, to row. The rower did row and appeared unwell afterwards. Strenuous exercise, such as rowing, can be very dangerous when unwell. The safety incidents included the capsizing of a 4 and a launch drifting away from the bank.

As a result, the club has relieved the Assistant Coach of their position. The Welfare Team has supported the rowers; all are well and feel that the outcome is acceptable. The club will, in future, seek further support when making appointments.

There is British Rowing recruitment guidance on the [Safeguarding](#) webpage in Safeguarding Handbook I Section 4; the CPSU also has guidance [here](#). The guidance within the Safeguarding Handbooks is designed primarily for Children, or Adults with Care and Support Needs. However, the principles still apply when working with any rowers."

Use of the Incident Reporting System

When using the Incident Reporting System, please identify your club as the Primary Rowing Club involved. We use this information to determine which club submitted the report when deciding which clubs will win the Safety Good Practice Awards.

Please take care with what you write

There have been some reports and comments that have an inappropriate tone. The Incident Reporting system is intended for everyone to report what they have seen in a helpful and constructive way so that opportunities for improvement can be identified and safety improvements made. It is not a forum for argument or the assignment of blame.

The concept of blame is unhelpful and has no place in a constructive discussion. This is not a court of law but is a place for the exchange of information by people who have a mutual interest in the safety of rowers. Please treat it as such.

On the other hand, one comment contained the following:-

Firstly I want to commend you for putting this report in, fully in the spirit of what this was meant to be used for. I wish others did the same more often. I will also add that it was nice that for once there was no screaming or shouting at the crew at fault as clearly it was just a learning error. People often forget that coxes need to learn somehow.

Please be nice to each other.

Knives to cut the straps of adaptive rowers in an emergency

Some rowers with disabilities use straps to hold them in the correct position in their boats when they row. The straps are designed so that they can be quickly released by the rower. However, it is normal practice for the coaches of these rowers to carry knives so that they can, if necessary, cut the straps to release the rower.

A coach reported that he had been carrying knives with exposed blades for this purpose. It was pointed out that it is not safe to use a knife with an exposed blade as it could cut into the flesh of the rower. If the knife cuts an adaptive rower in a part of his or her body with reduced sensation then it may do great harm.

The use of a safety knife with a concealed blades was recommended like the ones shown below. These are more substantial and ergonomic



These are fairly common devices, available from many suppliers, simply Google "Safety Knife". It was suggested that the pull knife (the one on the right) would be best for this application.

When do you look around?

We all know that when we are rowing or sculling, we should look ahead at least once every five strokes but have you ever considered at which point in each stroke should you do so. Someone asked me this and I do not know. I usually look ahead around the end of the drive, at backstops.

Not being sure I asked an expert; this was the reply from an experienced coach of international athletes:-

“Interesting question – and not straightforward! (I’d bet you’d get 20 different answers from 20 different people, too).

My take – If you’re a cox look (and thus move, and crucially, steer) when the blades are in the water (so the boat is stabilized).

If you’re a sculler, the same is true – but you’ll know your skill levels... Backstops is the worst place to look for someone who’s working seriously (you tend to stop, interrupt the rhythm and drag the blade on the side you’re looking (thus steering the way you almost certainly don’t want to go), so either look during the (middle of) the stroke or during the recovery. That said, if a good look (rather than the glance that a higher level athlete will do) is required, then that takes priority over any slight slowing down etc – whether for safety reasons or because you need a good look to steer... so I’d distinguish between “glancing” and “looking”. Novices clearly need to look! The problem is experienced people who don’t “glance” enough or who don’t “look” because they “know” what’s there.

Please do not kid yourself, however experienced you are, that you know what you are heading for. We have had reported collisions when overtaking a rowing boat going in the same direction, running aground, hitting the bank, bridges, pontoons, motor boats, buoys, barrages, posts, canoes, paddle boards, trees, bushes & reeds, submerged objects, moored boats, weeds, floating debris, dogs, logs, geese, swans, cows, fishing lines and a wardrobe.

Please think about when you look ahead and share this information.

Keep Club Hub updated

If your club changes its Club Rowing Safety Adviser then please update your entry in Club Hub. Keeping Club Hub updated will help us to ensure that safety information is provided to the correct person at your club.

Capsize Drills

There was a question about the provision of guidance on how to deliver capsize training and what a club needs to go through with each junior. The response was that there is online learning on the British Rowing website [here](#).

Information for competitors in Head races

The chairman of a large head race wrote to British Rowing because he was concerned at the suggestion that the need to self-isolate having tested positive for Covid-19 may be lifted soon. There is a risk that people recovering will return to strenuous exercise before their body has completed its recovery from the disease even if they are apparently asymptomatic.

He was aware that many athletes returned to training and racing with the residue of another virus in their system and suffered very debilitating viral fatigue, in one case never to race again. Most coaches would naturally assume that racing when Covid-positive is not a good idea and substitute an athlete, but many crews are self-managed and the pressure to compete may overcome their own common sense.

My reply included a copy of the Safety Alert on [Returning to fitness after Covid, last month's report](#) and a link to the article in the [British Medical Journal](#).

There was concern that there could be a claim for compensation if anyone was harmed if they rowed in a competition when not fully recovered. The response included the information that one defence against claims for compensation is to argue that the organisers have done whatever is reasonable to discharge their duty of care. In this case the provision of information and guidance to competitors, their clubs, and their coaches, is reasonable.

I also feel that it would be reasonable for the organisers to expect that competitors, etc. would abide by the guidance provided and not compete if they are recovering from Covid.

Wider access to safety information

There have been discussions on how some of the safety information included in these reports can be made more widely available. The reports are suitable for people who are interested in rowing safety but may be missed by people who are more interested in other topics. My colleagues currently include links to safety news articles in the various British Rowing Newsletters. If you can think of more ways in which we can engage people who would not otherwise see this information then please let me know at safety@britishrowing.org.

Assistance to other organisations

Support has been provided to the **Royal Yachting Association** (RYA) Regional Development Officer Manager in the area where the use of the water has been suspended due to concerns about Avian Flu. This includes the quantified risk assessment that is presented in Appendix I of this report and the feedback from many of you on the absence of restrictions on rowing in the areas that you know about, thanks again for these. This information was also shared with my counterpart at **British Canoeing**.

Copies of several Incident Reports involving gigs have been provided to my counterpart at the **Cornish Pilot Gig Association** (CPGA).

Copies of several Incident Reports involving canoes and kayaks have been provided to my counterpart at **British Canoeing**.

Natasha's Law

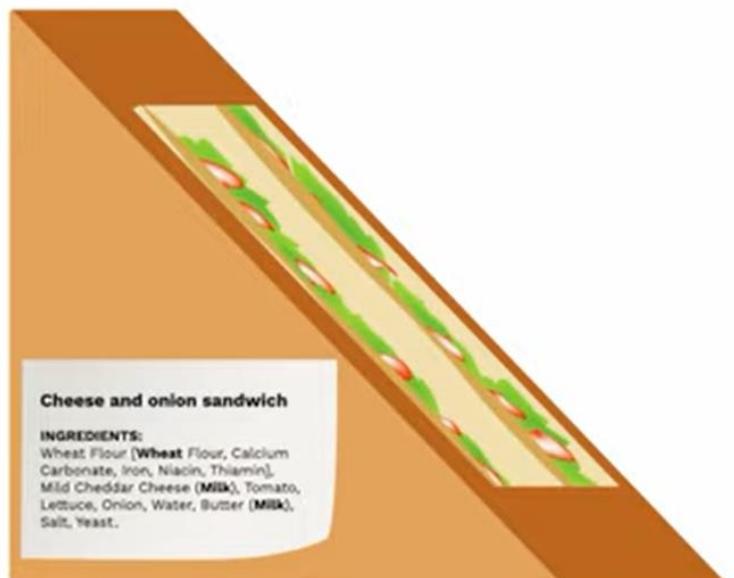
In 2016 Natasha Ednan-Laperouse died, on an aircraft, at the age of 15 as a result of a severe allergic reaction after eating a baguette purchased from an airport caterer. At that time there were no legal requirements for food prepared on the premises where it was sold to be labelled to show its ingredients. The law changed with effect from 1 October 2021.

The new requirements apply to food that is prepacked for direct sale (PPDS). PPDS is food that is packaged at the same place it is offered or sold to consumers and is in this packaging before it is ordered or selected. It can include food that consumers select themselves (e.g. from a display unit), as well as products kept behind a counter and some food sold at mobile or temporary outlets. Labelling requirements also apply to pre-packaged food, this is food that was packed at a different site to where it is offered to consumers, or food that has been packaged by another business. This regulation does not apply to drinks.

If your club or competition sells food, such as wrapped cakes or sandwiches, then this regulation may apply to you.

The requirement is to label the packaging to show the ingredients and to highlight any of the 14 specified allergens that may be present. The 14 allergens are:

- celery
- cereals containing gluten – including wheat (such as spelt and Khorasan), rye, barley and oats
- crustaceans – such as prawns, crabs and lobsters
- eggs
- fish
- lupin
- milk
- molluscs – such as mussels and oysters
- mustard
- tree nuts – including almonds, hazelnuts, walnuts, brazil nuts, cashews, pecans, pistachios and macadamia nuts
- peanuts
- sesame seeds
- soybeans
- sulphur dioxide and sulphites (if they are at a concentration of more than ten parts per million)



There is extensive guidance on the Food Standards Agency (FSA) website [here](#), this contains an explanatory video, and FSA guidance for event caterers [here](#). This is a complex field and the guidance is extensive. Please consult the guidance if you have any concerns.

Is it good or bad practice to carry an AED in a launch?

Someone wrote to say that an article in a previous report hinted at not carrying an AED in a launch but this advice was thought not to be specific. The concern was that someone may decide to use an AED in a launch and that there is always water in the bottom of boats.

The response was that the important thing with AEDs is that they are available as soon as they are needed and that everyone knows where they are. It also helps if everyone knows how to use them.

There are several considerations as explained below:-

1. Will carrying an AED in a launch damage the AED?

AEDs are susceptible to damp and cold. It is possible to protect them against dampness with a waterproof casing but there is still a risk. Waterproof casings are not always as waterproof as we would like them to be. Cold (below 0 C) damages the pads and they are no longer adhesive. There is also a risk of mechanical damage if the AED is bouncing around in the bottom of a boat.

2. Are there any disadvantages in having the AED in the launch?

Time delay is critical and it takes time to transfer an unconscious casualty from a boat to a launch. There is also a risk that in doing so they may get wet. It is best to apply the pads to dry (or dried) skin. It is not possible to do effective CPR in a boat or in a launch. Attempting CPR will cause the boat to move up and down and reduce the effectiveness of the compressions. There is not a lot of room in a launch and both CPR and defibrillation are best done with the casualty in the prone position, this may not be possible in a launch. The AED will not be where other people who need it expect it to be.

3. Is it safe for the user to use an AED in a launch?

In reality it is safe to defibrillate anywhere. The current pathway is between the pads and despite all the warnings there is believed to be very little spread beyond this pathway. However, from a good practice point of view, care should be taken not to touch the casualty during defibrillation.

4. Will the resuscitation of the casualty be effective in the launch?

Remember that the pads are positioned on either side of the heart so that the shock is through the heart. Provided that the pads are properly stuck to the skin (dry or dried skin) then a little leakage would probably not reduce the "strength" of the shock significantly. However, it is not just the shock that matters it is the delivery of effective chest compressions makes survival more likely.

5. Is there a better way?

The normal recommendation is to get the casualty ashore without delay and start CPR (call for help, check for breathing, prone, open airway, etc.). Fetch and attach the AED and listen for instructions and follow those instructions (do not forget to turn the AED on). In addition, the crew and coach should carry mobile phone so that they can call for help (identify and list any areas where phone reception is poor).

My advice is to keep the AED, ready for use, in the place where everyone expects to find it. If there are other AEDs in the area where you row, perhaps at other clubs, then ensure that your members know where they are and how to access them.

Do safety launch crew members need insurance?

There was a request for advice on the need for insurance for safety boat crew. The response was that the [Social Action, Responsibility and Heroism Act 2015](#) provides useful guidance. This is a short Act that is reproduced below:-

1 When this Act applies *This Act applies when a court, in considering a claim that a person was negligent or in breach of statutory duty, is determining the steps that the person was required to take to meet a standard of care.*

2 Social action *The court must have regard to whether the alleged negligence or breach of statutory duty occurred when the person was acting for the benefit of society or any of its members.*

3 Responsibility *The court must have regard to whether the person, in carrying out the activity in the course of which the alleged negligence or breach of statutory duty occurred, demonstrated a predominantly responsible approach towards protecting the safety or other interests of others.*

4 Heroism *The court must have regard to whether the alleged negligence or breach of statutory duty occurred when the person was acting heroically by intervening in an emergency to assist an individual in danger.*

In civil law, in general, the standard by which the discharge of Duty of Care is assessed is "reasonableness". In other words, would a reasonable person conclude that the response was reasonable? This is not a difficult standard to achieve.

I do not think that it is necessary for launch or rescue crew to have insurance to cover this activity. Launches should be insured, of course, and to an extent this will cover the actions of the driver.

Restricted access to water due to fears about avian flu

The Parks Department of a Local Authority suspended access to waters that it controls due to concerns about the risk to human health from exposure to birds suffering from avian flu and dead birds. This was based on a World Health Organisation paper dated 2007 that included references to the risk to people swimming in water used for the disposal of dead birds or containing the faeces of infected birds. There was no reference to Watersports.

A request was made for people in other areas of the country to share any information on any restrictions imposed on them. Many have replied (thanks) and said that they have full access to the water and that their rowing is not restricted. This information has been passed to a member of one of the clubs involved.

It is understood that discussions with the Local Authority are continuing and the suspension of rowing and other Watersports is also continuing.

An attempt has been made to construct a quantified Risk Assessment. This is presented in Appendix I.

Keeping first aid training up-to-date

There were several questions about the need for coaches and others to keep their first aid training up to date in order to maintain their qualification. These were the questions and responses:-

Do BR qualified coaches have to keep their first-aid up to date for their coaching qualification to remain valid?

Coaches are expected, but not required, to keep their First Aid (and Safeguarding) qualifications up to date. This is not a requirement and their qualification as a coach is not explicitly at risk if they do not. Section 4 of the [British Rowing Codes of Practice](#) contains the following...

Coaches, Officials, Umpires and Volunteers should maintain up-to-date knowledge and understanding of developments within Rowing relevant to their role and have a commitment to ongoing continuing professional development to ensure safe and correct practice.

There is nothing specific about First Aid. I also checked the [UK Coaching Code of Practice](#) and there is nothing relevant there too.

Are there any BR coach insurance implications if a coach continues to coach after a first-aid qualification has expired?

No, or I do not think so.

Should someone who is first-aid qualified (not necessarily the coach) be in attendance at organised coaching sessions? What about L2R courses?

It all depends on the risk assessment for the activity and on the needs of the people involved, this will vary from club to club. If the risk assessment says that the risk is tolerable only if first aid facilities (people and equipment) are present then they should be in attendance and equipped.

RowSafe in the Almanack

A summary of RowSafe is provided in the British Rowing Almanack each year. The text of the entry for the 2022 Almanack has been updated to include the 2021 updates to RowSafe.

2022 Update to RowSafe

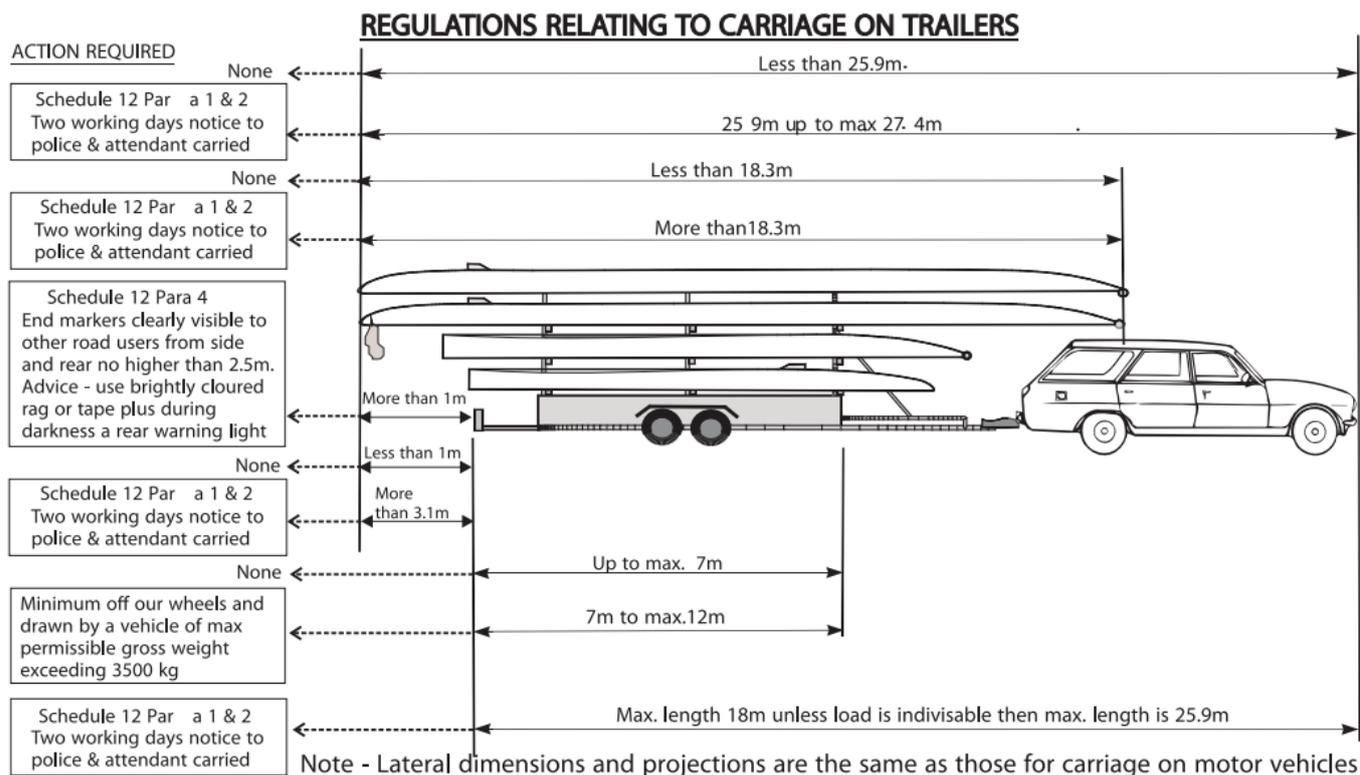
Work on the 2022 edition of RowSafe is about to start. Please let me know if you have any suggestions for amendments. Please consider the need to add, modify or remove any information. Please write to safety@britishrowing.org.

Updates to the risk assessment matrix

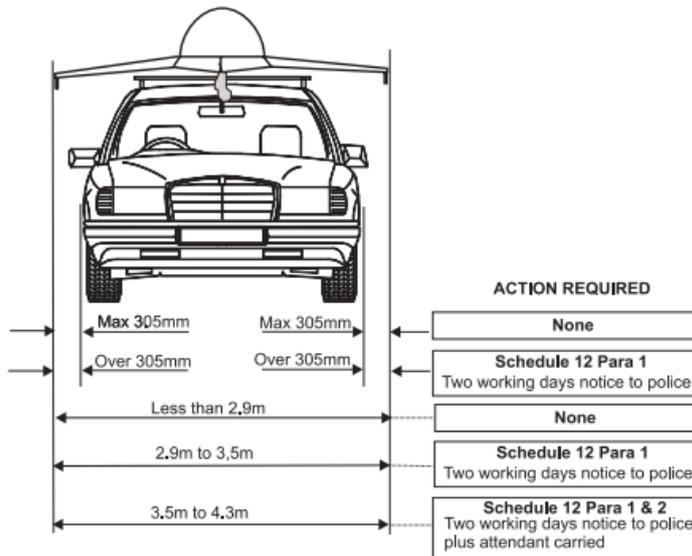
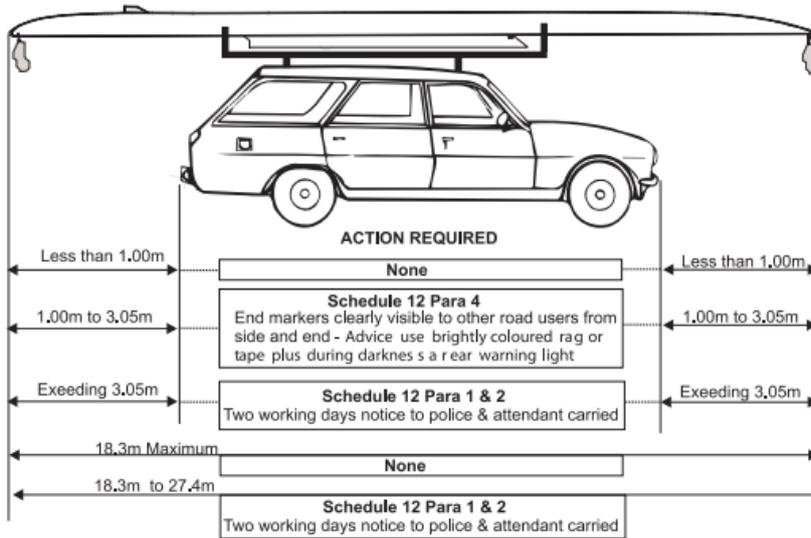
A colleague in Australia has asked for the Risk Assessment template to be updated so that it covers the topics listed in Chapter 9 of RowSafe. Sections on Rowing in Floods (see RowSafe 9.10) and Indoor Rowing (see RowSafe 9.11), have been added.

Take care loading your trailer

A boatman, sculler, and regular tow driver has sent me this photo of a badly loaded trailer. British Rowing, together with the Association of Chief Police Officers, has issued “Guidance for the Transportation of Oar Propelled Racing Boats”, this is available [here](#), and contains the following diagrams indicating the limiting dimensions of overhangs on towing vehicles and trailers.



REGULATIONS RELATING TO CARRIAGE ON MOTOR VEHICLES



Schedule 12 is a schedule of [The Road Vehicles \(Construction and Use\) Regulations 1986](#).

Regulations 81 and 82 also relate to the dimensions of laden vehicles.

One of the problems with badly loaded trailers is that they can become unstable when being towed. There are videos explaining this phenomena, and how to avoid it, [here](#), [here](#), and [here](#).

There was an incident the UK, in 2015 in which a rowing boat trailer went into oscillations causing the towing vehicle to overturn. The vehicle and trailer became separated, and the boats were damaged. Luckily there were no fatalities but the driver suffered injuries that required hospitalisation. There is more information in a Safety Alert, [here](#).

The aim should be to keep the centre of gravity of the load directly above the trailer axles. It may help to find the centre of gravity of each part of each boat and keep each centre of gravity above the axles. The Centre of gravity of each component can be found by very carefully balancing each component on a single trestle. It is usually OK to have the boats overhanging the towing vehicle but there are limits to the extent that they are allowed to overhang the rear of the trailer.

Appendix 1 - A summary of the risks associated with rowing in waters that may contain birds with H5N1 Avian Influenza

Summary

This analysis reviews various considerations on the risk to rowers and concludes that the level of risk is low. It considers the following topics:-

- The consequences of infection in humans
- The level of risk that is tolerable to people in the UK
- The Risk in a River vs that in a Lake
- Probability of Infection and
- The persistence of the virus in water

Consequences of Infection in humans

This is based on information on the US Centre for Disease Control (CDC) website [here](#)

Highly Pathogenic Asian Avian Influenza A(H5N1) in People

Sporadic Cases of Asian H5N1 Have Occurred in People. Although human infections with this virus are rare, approximately 60% of the cases have died.

Asian HPAI H5N1 Virus Infection Can Cause Severe Illness in People

The majority of human infections with Asian HPAI H5N1 have occurred among children and adults younger than 40 years old. Mortality has been highest in people aged 10-19 years old and in young adults. Most human Asian HPAI H5N1 cases have presented for medical care late in their illness and have been hospitalised with severe respiratory disease. However, some clinically mild cases have been reported, especially in children. It is possible that the most severely ill people are more likely to be diagnosed and reported, while milder cases are less likely to be detected and reported. Despite the high mortality, human cases of Asian HPAI H5N1 remain rare to date, even among persons exposed to infected poultry.

Most Cases of Asian H5N1 in People Have Been Linked to Contact with Infected Poultry. In the majority of cases, people got HPAI Asian H5N1 virus infection after direct or close contact with sick or dead poultry that were infected with the virus.

Currently (1st February 2022), HPAI Asian H5N1 virus does not transmit efficiently from person to person. Some cases of limited, non-sustained human-to-human transmission have likely occurred.

It is therefore assumed that Mortality ~50%, Morbidity ~80%, (both allowing for undiagnosed cases) and the probability of human to human transmission ~0%. These are probably overestimates as the quality of health care is better in the UK than in some countries in Asia.

The level of risk that is tolerable to people in the UK

The concept of tolerability

In 1992 the HSE published a ground-breaking document [Ref.1] which set out to address the reality that nothing is safe, so it is inevitable that we must accept a certain level of risk. It introduced the concept of tolerability and went on to explain it as such –

*'Tolerability' does not mean 'acceptability'. It refers to a willingness to live with a risk so as to secure certain benefits and in the confidence that it is being properly controlled. To **tolerate** a risk means that we do not regard it as negligible or something we might ignore, but rather as something we need to keep under review and reduce still further if and as we can. For a risk to be 'acceptable' on the other hand means that for purposes of life or work, we are prepared to take it as it is.*

So what is Tolerable?

A more recent document from the Office for Nuclear Regulation [Ref.2] identified three areas of risk – Unacceptable, Tolerable and Broadly Acceptable. The boundary between Unacceptable & Tolerable was called the Basic Safety Level (BSL) and set at 1 in 10,000 for the individual risk of death per annum. The boundary between Tolerable & Broadly Acceptable was called the Basic Safety Objective (BSO) and set at 1 in 1,000,000 for the individual risk of death per annum.

Risk Categories	Risk of Death to an individual per annum
Unacceptable	1:1 – 1:9,999
Basic Safety Level	1:10,000
Tolerable	1:10,001 – 1:999,999
Basic Safety Objective	1:1,000,000
Broadly Acceptable	1:1,000,001 – 1:infinity

References

[1] HSE, The Tolerability of Risks from Nuclear Power Stations
www.onr.org.uk/documents/tolerability.pdf

[2] ONR, Risk Informed Regulatory Decision Making 2017
<https://www.onr.org.uk/documents/2017/risk-informed-regulatory-decision-making.pdf>

[3] HSE, Reducing risks, protecting people - HSE's decision-making process HSE Books 2001 ISBN 978071762151 4 www.hse.gov.uk/risk/theory/r2p2.pdf

(with thanks to Mike Selway)

Probability of Infection

The average whole-world probability of dying from H5N1 bird flu is about 1:300,000,000 per year based on a world population of 7,900,000,000 and 456 deaths over 18 years. This is tolerable. Even if we assume that all these deaths occurred in a year when there was a serious outbreak and that there was one serious outbreak in the last 18 years then the probability reduces to 1:17,00,000.

Research in Cambodia, [here](#), shows that people who swim or bathe in virus laden waters are 11 times more likely to contract Avian Flu than those in the same village who do not.

We have assumed a mortality rate of 50% of those infected. This resolves into a risk due to swimming or bathing in infected waters of 1:3,000,000. Much lower than 1:1,000,000 that is regarded as “Broadly Acceptable”.

Rowers row on the water and not in the water. The probability of them swallowing infected water is very low. They will be at a much lower risk than swimmers.

There are several comments like this, [here](#):

Small clusters with the same exposure prior to disease onset have been observed, yet no sustained human-to-human transmission has been identified. Human cases have reported direct exposure to apparently healthy looking or sick poultry, mostly backyard poultry before onset of disease. The most commonly identified risk factors associated with A(H5N1) virus infection include contact with infected blood/organs or bodily fluids of infected poultry through food preparation practices; touching and caring for infected poultry; exposure to A(H5N1) by swimming or bathing in potentially virus-laden ponds, exposure to A(H5N1) at live bird markets in Asia and via backyard poultry in Egypt.

and

While the risk to human health from avian flu is very low, please be extra vigilant if you take part in water-based activities such as wild swimming, canoeing, kayaking or boating, and report anything that is untoward. [Public advice following cases on avian flu in Fife | NHS Fife](#) There is no suggestion that these activities should be avoided.

The Risk in a River vs that in a Lake

There has been some comment that the risk of exposure to dead birds in a lake is greater than that on a river because there is little flow through a lake and the dead birds will not be swept downstream. In my view this is a fallacy because it does not take into account the fact that in a river, any dead birds, will be swept through the area used by rowers. Those that are swept away downstream are likely to be replaced by those that died upstream.

Rowing is essentially a linear activity, we tend to row more or less in straight lines. If we identify our rowing venues as distances along the waterway between two fixed points then we would expect the number of dead birds encountered by rowers, and the concentration of virus particles in the environment to be less in lakes because the cross sectional area of most lakes is greater than that of most rivers. Simply put, lakes tend to be wider and deeper than rivers so any virus particles or dead birds will be spread over a greater volume of water.

It is therefore assumed that lakes are marginally safer, in this regard, than rivers. However, this conclusion is so difficult to quantify that it is ignored for the remainder of this analysis.

How long does the virus persist in water

There is information [here](#) which states that:

“The environmental persistence of zoonotic pathogens is a key trait that influences the probability of zoonotic spillover. Pathogen survival outside of the host determines the window available for contact with the new recipient host species and the dose of pathogen available to that host. The longer a pathogen survives in the environment, the more disconnected the reservoir and recipient hosts can be in space and time, and the more likely that an infective dose will be available to recipient hosts. Therefore, environmental persistence is a key parameter for mechanistic models needed to predict pathogen spillover. Avian influenza can be transmitted from wildlife to poultry and people in part due to its ability to persist in the environment.

...

We found temperature significantly decreases persistence of H5N1 virus in water, and this effect is stronger than that of salinity alone. Salinity interacts with temperature and probably drives the most contrasting persistence scenarios between cold-saline and warm-saline water bodies, where highest and lowest persistence times could occur respectively..”

This translates roughly as “The longer the virus can survive in the water, the more hosts it has chance to infect.

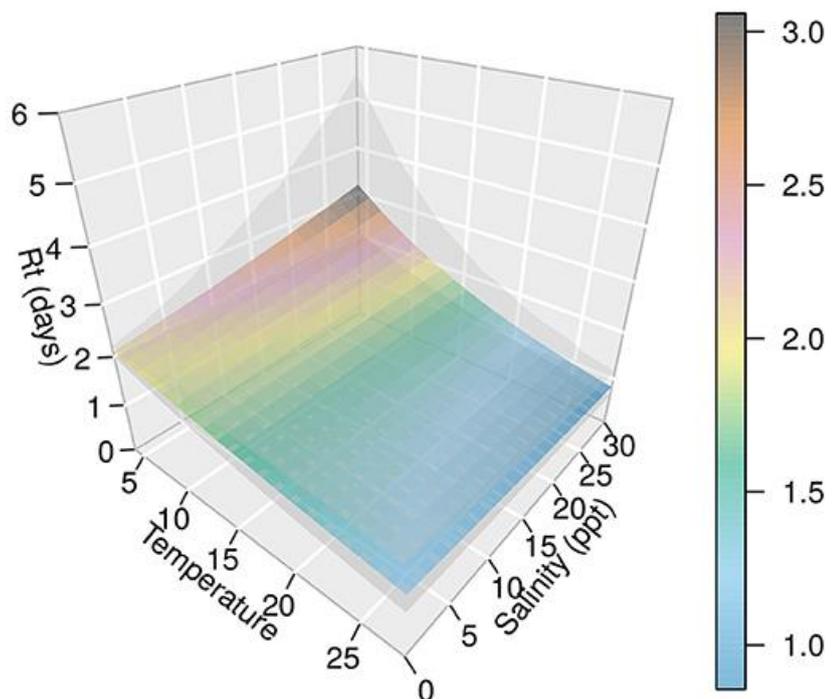
There is lots of data available and it is summarised in this paper. The virus survives better in cold water than warm water and salinity has a smaller effect with the virus lasting less well in more saltier water.

The results are expressed in graphical form opposite.

Rt is the resistance time (in days) until 90% of the virus is inactivated in response to temperature and salinity.

As I understand it, this means that the virus can be assumed to be no longer present about 3 days after the last source of viral contamination (i.e. dead bird) has gone.

Estimated Rt



Conclusion

In my view, as long as normal hygiene practices are maintained and the advice contained in the recent British Rowing Safety Alert on Avian Flu is followed then the risk to rowers from contracting H5N1 Avian flu is slight and falls well below the level of risk that is assessed as “Tolerable” and into the band that is “Broadly Acceptable”. This is the lowest band of risk.